

AMENDMENTS TO THE CLAIMS

1. (Currently Amended): A system for monitoring and alerting to change in media situated in an unenclosed natural environment adjacent a part of said system, comprising:

5 at least one array of optical fibers affixed to a support having a length, width and depth, each optical fiber having an end exposed approximately orthogonal to said media and said length of said support,

wherein said array communicates a pre-specified level of detail as data regarding said change;

10 at least one source of optical signals in operable communication with each said optical fiber at least during a portion of operation of said system;

at least one optical coupler in operable communication with each of said optical fibers; and

15 at least one sub-system in operable communication with each said optical fiber at least during a portion of operation of said system,

wherein said data are processed by said sub-system to provide measurement of and alerting to said change, and

wherein said change may be recorded and displayed via said sub-system.

- 20 2. (Previously Amended): The system of claim 1 in which said data regarding said change is selected from the group consisting of: reflection coefficients, transmission coefficients, and combinations thereof.

- 25 3. (Previously Amended): The system of claim 1 further comprising a multiplexer, wherein said multiplexer may be employed to energize said optical fibers in a pre-specified sequence.

4. (Previously Amended): The system of claim 1 said optical fibers arranged in at least one vertical array upon a rigid support.

- 30 5. (Original): The system of claim 1 in which said optical fibers are plastic.

6. (Original): The system of claim 1 in which said optical fibers have an index of refraction of approximately 1.492.

5 7. (Original): The system of claim 1 in which said optical fibers are each incorporated as one of a pair in said optical coupler.

8. (Previously Amended): The system of claim 1 in which said sub-system includes at least an optical receiver, a high pass filter, an amplifier, a detector and a display.

10 9. (Original): The system of claim 8 further comprising a control device.

10. (Previously Amended): The system of claim 1 in which said sub-system comprises at least a power meter.

15 11. (Original): The system of claim 10 further comprising a processing and control device incorporating a display.

20 12. (Original): The system of claim 3 further comprising an umbilical cable in operable communication with at least said multiplexer, said source and said sub-system.

13. (Original): The system of claim 1 further comprising an anchoring device.

25 14. (Original): The system of claim 1 in which said source is a light emitting diode (LED).

15. (Original): The system of claim 14 in which said LED emits red light.

30 16. (Previously Amended): The system of claim 1 in which at least one of said optical signals is provided as a cyclical signal.

17. (Original): The system of claim 16 in which said cyclical signal is a square wave.

18. (Original): The system of claim 17 in which said square wave is cycled at approximately three KHz.

5 19. (Previously Amended): The system of claim 8 in which said optical receiver is selected from the group consisting of a phototransistor, a photodiode, and combinations thereof.

20. (Original): The system of claim 1 in which said sub-system further comprises:
at least one multi-channel multiplexed data acquisition printed circuit board
10 incorporating at least one analog-to-digital converter;
at least one personal computer, incorporating a display, in operable communication with said multi-channel multiplexed data acquisition printed circuit board; and
software loadable on said personal computer for processing said data.

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21. (Original): The system of claim 1 in which said coupler is a four-port optical splitter.

22. (Currently Amended): A system for monitoring and alerting to change in media
situated in an unenclosed natural environment, comprising:

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at least one optical means for sensing change in at least one characteristic of said media and transmitting data representing said change;

at least one array of said optical means,

wherein an end of each said optical means is affixed to a support having a length, width and depth, and

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wherein each said optical means is exposed approximately orthogonal to said media ~~with respect to~~ and said length, and

wherein said array communicates a pre-specified level of detail regarding said change;

at least one means for energizing each said optical means, said means for energizing in operable communication with each said optical means;

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at least one means for processing said data, said means for processing in operable communication with each said optical means,

wherein said means for processing provides measurement of and alerting to said change, and

wherein said means for processing displays and records said change; and

at least one means for coupling together said optical means, said means for energizing and said means for processing.

23. (Currently Amended): A method for monitoring and alerting to change in media situated in an unenclosed natural environment, comprising:

providing at least one array having at least one optical fiber, said array affixed to at least one support having a length, width and depth;

exposing an end of each said optical fiber approximately orthogonal to said media and said length;

configuring said array to provide a pre-specified level of detail regarding said change;

impressing an optical signal from at least one source on each said optical fiber in said array;

collecting said impressed optical signal and a response signal of said media to said impressed optical signal;

providing a sub-system in operable communication with each said optical fiber,

wherein said sub-system processes said response to enable measurement of and alerting to said change, and

wherein said sub-system displays and records said change; and

providing at least one coupler in operable communication with each said optical fiber, said source, and said sub-system.